Media Backgrounder
Artificial Intelligence in the Workplace of 2025

Munich, July 2018

Today's businesses are rapidly transforming, with more and more core business processes relying heavily on digital technologies. However, despite the dramatic technological advances, we have only scratched the surface of the support we will receive from technology over the next eight to ten years. Artificial intelligence (AI) will continue to evolve to become embedded in every aspect of working life.

While much of the focus for advanced automation to date has been on structured, scripted tasks, in the medium-term AI-powered machines will become better able to take over unstructured tasks. We'll see the increasing use of intelligent assistants who will provide personalized, dynamic support to workers over the course of the working day. For example, AI-powered digital assistants will assist employees as they interact with different forms of data – ranging from forging new business connections based on a machine-determined best match of skills, to delivering a highly personalized, dynamic and context-based experience for work day task scheduling; and making use of real-time dynamic routing to avoid traffic congestion and optimize journeys and modes of transport.

In a recent whitepaper and survey, Workplace 2025, created for Fujitsu, leading independent research firm Pierre Audoin Consultants (PAC) predicts that businesses can expect a transformative effect on their workplace, driven by changing demographics, the rise of Artificial Intelligence (AI) and the disappearance of the traditional office environment. AI will also play a key role in defending against an escalating cyber security threat, which will increase in sophistication as more areas of the business – from the office entry system to the coffee machine – become connected to the Internet of Things.

The transformational effect of AI

AI is already capable of an ever-growing range of tasks and is starting to have far-reaching impact on almost every aspect of the workplace and how people live and work. PAC foresees that the pace of AI adoption will accelerate between now and 2025, and will impact all aspects of future workplaces, rendering many of today's working practices and productivity tools obsolete by as soon as 2025. The Workplace 2025 study included interviews with 1,278 senior business and technology decision makers at large and mid-sized commercial and public-sector organizations in Europe, the United States, Australia and New Zealand, across five main industries including financial services, manufacturing, retail, utilities and the public sector.

The organizations in this study expect technology to have a transformational impact on all aspects of their workplace within the next decade. Some 88% of participants believe that the rise of AI and robotic automation will be one of the top three factors to shape their workplace in 2025. It is in the retail sector where this is of importance, with 93 percent considering it a priority, while across all industries, a third cite it as the top factor. In financial services, it is a priority for 40 percent, and the bank Credit Suisse already uses AI algorithms to analyze company news and reports to help it pick stocks, while Danske Bank is just one of many financial services firms using AI as part of its fraud detection and management strategy.

The changing workplace

The PAC whitepaper warns that businesses today must start to foster a culture of innovation and collaboration, both inside and outside their organization, and highlights that outdated technology and outmoded working practices can stifle productivity and demotivate employees. The study found that the large majority of organizations believe their current approach to be far from perfect. More than three quarters (79 percent) of participants view their current working hours and practices as simply not flexible enough to get the best out of their workforce.

Technology will be one of the biggest factors in defining the future workplace. But the study also paints a relatively negative picture of the impact that technology is having on the workplace today, with close to two thirds (63 percent) of participants stating that interoperability with

outdated technology is a major challenge to productivity (including 68 percent of respondents from financial services firms), while more than half also cited the complexity of current workplace technology and a lack of access to the right productivity tools as major issues.

Clearly, there are opportunities for new technologies to improve the employee experience, to overcome this frustration. This was one of the key objectives in a recent transformation project completed by Fujitsu and the Royal Bank of Scotland (RBS). As an organization, RBS concentrates 100 percent on the customer experience, which also means making sure that employees have the best experience. And since a great deal of their work involves using technology, RBS partnered with Fujitsu to make the technological element as satisfying as possible. For example, RBS allows its employees to use any device on corporate networks and emphasizes a mobile-first strategy. These moves are part of RBS's strategy to inspire digital working across generations and build the next-generation office.

In another example of forward thinking, British American Tobacco (BAT) has opted for the Fujitsu next-generation Service Desk – the Fujitsu Social Command Center (SCC), powered by AI and featuring a virtual assistant and cognitive learning capabilities. This gives BAT employees access to a 24/7 intelligent portal, from any device or location. The AI-powered Fujitsu Social Command Center can go far beyond just resolving technology issues, by identifying the underlying cause and impact of problems and mitigating their impact – and to use AI and proactive algorithms to prevent problems from occurring in the first place.

This is one example of how AI is the most promising strategy to improve employee experience, since it achieves new levels of insight into employee behavior, preferences and context. The risk, says PAC, is that many businesses will fail to embrace this emerging technology and reap its potential rewards. While most of organizations are starting to lay the right foundations to future-proof their workplace – for example by introducing AI-based technologies such as digital virtual assistants –the whitepaper highlights that many are already struggling to keep up with employees' changing workstyle preferences. Instead, organizations should be planning for an era in which AI is pervasive, workers are always connected, freelance and flexible work are commonplace, and traditional industry systems are broken down and reinvented. Forward-looking businesses, notes PAC, are already developing a vision of their future workplace and making plans to embrace the different role played by employees in a workforce reshaped by AI.

In fact, AI is already leading to the emergence of a more personalized user experience, which dynamically adapts to recognize context, location and preferences. In the consumer market, digital virtual assistants such as Microsoft Cortana and Amazon Alexa are already familiar AI applications. However, adoption remains at an early stage in the enterprise world. This could be about to change: According to the PAC study, close to half (47 percent) of organizations plan to invest in this area in the next two years. Uptake will be particularly strong in the public sector (70 percent), utilities (67 percent) and financial services (64 percent), with banks including Sweden's Swedbank and India's HDFC Bank already using AI-powered virtual assistants in customer services roles.

The Fujitsu SCC has already introduced cognitive technologies into workplace solutions, including AI and voice biometrics. The SCC aims to help simplify a wide spectrum of user requests and needs, by blending the familiarity, consistency and versatility of a virtual personal assistant with the ease and usability of an intuitive natural language interface. As highlighted in *The White Book of Next-Generation Service Desk*, published by Fujitsu, technology-savvy users today not only expect transparent support models to solve IT problems in the background, but also proactive, future-facing preventative measures. The aim of the SCC is to provide a simplified, personalized user experience to support a growing range of requests as well as helping solve routine IT problems – such as forgotten passwords – using automation, virtual agents and cognitive learning. User voice pattern recognition is supported for situations where biometric verification is required in addition to single sign-on. As Conway Kosi, Senior Vice President, Head of Digital Technology Services, Fujitsu EMEIA said at the launch of the SCC: "Our goal is that virtual agents will eventually pass the Turing test: most of the time, people won't even realize they're talking to a machine. And because we are automating a range of everyday support requests, live agents are able to act faster than ever in resolving more complex user support needs."

Fujitsu recommends that an effective workplace strategy for 2025 and beyond should be based around the pervasive use of AI-powered systems throughout the working day. AI will free up employees to focus on more complex, interesting and value-add activities, as well as provide support via intelligent assistants. It will also help forge new business connections based on a machine-determined best match of skills, deliver a highly personalized, dynamic and context-based experience for work-day task scheduling, and use real-time dynamic routing to avoid traffic congestion as well as optimize journeys and modes of transport. Employees working in offices will be dynamically allocated hot desks close to colleagues with whom they interact the most frequently, digital assistants will take care of calendar scheduling and administrative tasks such as travel booking, while wearable devices will help people authenticate and gain access to information and systems anywhere, anytime.

The impact on the workforce

Just like every technology revolution before it, AI will change the shape of the workforce – removing the need for some jobs and creating new positions that we haven't yet imagined. The first change that we'll see, according to the PAC study, is AI coming to the fore in increasingly handling manual and repetitive tasks, since it can do these more accurately than humans. Freeing up employees from these activities enables them to focus on more complex, value-adding activities. For example, Fujitsu recently designed and deployed an AI solution for Siemens Wind Power that uses deep learning capabilities to significantly reduce inspection times for its newly-manufactured wind turbine blades. The AI system

can detect anomalies that occur during the manufacturing process and that could cause the blades to fail during operation. Inspection time to thoroughly check every centimeter of the entire surface area of a new blade is reduced to just two hours. As a result, highly-skilled engineers are freed up from a monotonous but necessary task that could previously take a full day, saving Siemens an estimated 30,000 man hours per year.

A further example of how this is happening now is a pilot project at the San Carlos Hospital in Madrid, Spain where Fujitsu has implemented an AI system that can rapidly undertake a preliminary assessment of lengthy digitalized patient records from multiple different sources. System accuracy in being able to identify vulnerable patients is calculated to be 95 percent or higher, performing equally as well as a team of eight psychiatrists, with more than 20 years' experience each. Using AI to help accelerate the evaluation of each patient frees up doctors to spend more time with their patients and to focus on other tasks, including treatment and ongoing care.

Even without AI, technology is already transforming the workplace. Engineering, utilities and energy sector are faced with a series of internal and external challenges. They are continually trying to challenge themselves on how to improve their productivity, enhance their customer experience and encourage innovation, while maintaining health and safety within the workplace. It is now well understood that customers want to interact with businesses in a time, manner and medium of their choice, which is where Fujitsu's Digital Workplace comes in as it supports the sharing of best practice between colleagues, enabling essential knowledge to be passed between different departments, regions and generations. It empowers disparate colleagues to become a connected workforce and arms field workers with the right assets and information whenever and wherever they need it regardless of device.

For example, the modern workforce is obtaining greater choice and flexibility through initiatives such as Bring Your Own Device (BYOD), Choose Your Own Device (CYOD) and Bring Your Own Apps (BYOA). By promoting these initiatives, employers can attract new talent and meet changing user demand. In short, it means field workers are provided with anytime, anywhere access to data and applications. Therefore, when real time access to information is available, field workers are equipped with intelligence that lets them work in the most efficient and safest way, increasing their productivity. As a result, jobs scheduled for the day can be done in order of importance and based on the most efficient route. The number of repeat visits is drastically reduced, and projects are completed at a faster rate. The benefits of a connected workforce not only affect the companies themselves, but their customers too, and by using workplace technology appropriately, service is improved, and reputations enhanced.

Skills shortages and labor efficiency

According to McKinsey & Company, online talent platforms, such as monster.com and LinkedIn could add $2.7 trillion to global GDP by 2025 by connecting people to the right work opportunities. This, argues McKinsey, will drive out inefficiencies in the world' s labor markets that result in millions of people not being able to find work, even while some sectors, such as technology and healthcare, struggle with persistent skills shortages. And from a human-centric perspective, these inefficiencies result in unemployment, underemployment, stagnant wages, and discouragement or for many millions of people globally.

Now imagine these platforms powered by AI. By extracting the patterns and data from these platforms, AI has the potential to impact how people with the necessary skills are identified and then allocated to work, with systems that learn how skills bottlenecks affect tasks or processes, where those skills reside and how to access them. The implications go well beyond the likely improvement in productivity and include new opportunities for flexible working practices, bringing people with the right skills but who are not looking for full time roles – parents or older workers, for example - back into the workplace and economic productivity.

If enterprises are to keep pace and create an adaptive framework for the workplace of the future, says PAC, they will need to develop a vision of the critical roles and skills needed in the medium- to long-term range to plan effectively and lay the foundations for everything from the implementation of office space and infrastructure, to the technical skills needed to build and support a workforce that will be reshaped by AI.

Finding these technical skills, in the right order of magnitude, is not going to be easy. The shift to AI supported tasks will drive the need for new roles that require analytical skills, creating a war for talent among companies as they scramble to fill the expected skills gap. The skills focus will shift from people who collect data and write applications to people who can interact with robots, with the coding done automatically. The key required skills will become more analytical in nature.

Towards AI cyber security

The threat of cyber-attacks continues to grow in both scale and sophistication and is impacting all industry sectors. Lloyds of London stated in 2017 that a serious global cyber-attack could cost the global economy $120bn, as much as natural catastrophes such as Hurricane Katrina.

What does give cause for concern is that more than half of the PAC study participants (56 percent) stated that their current approach to workplace security has a negative impact on employee productivity, with 20 percent of the total sample base stating that it has a "highly negative" effect. To overcome this contradiction, businesses will have to provide seamless access to corporate data and systems to casual and remote workers and this is not something that many organizations can deliver today.

The real power of an AI system is that it only needs to learn once. Once learned, the system's knowledge – for example, a question like 'what do normal data packets (as opposed to a security breach) look like?' can be transferred to other applications. This learned recognition then provides instant help in making decisions or recommending intervention. AI is being used to scan vast amounts of internet traffic in real time, helping identify potential cybersecurity threats that have never even been seen before: Something that means mitigating action can be taken before a threat has taken hold, and rendering AI the most important ally in future cybersecurity.

In the real world, security requirements are not monolithic, with differing requirements based on the precise circumstances in play, such as an employee's function in the organization and her or his need for access to different types of data. According to PAC's findings, 44 percent of organizations have yet to implement a role-based provisioning of applications, devices and services. This is a crucial step to enabling organizations to monitor and control access to potentially sensitive corporate data, while ensuring that workers, be they temporary of fulltime employees, can rapidly gain access to the resources that they need to perform their job.

Cyber security and the ability to protect data assets against escalating and increasingly sophisticated attacks will continue to be a crucial issue, particularly as the boundaries blur between individual businesses and their ecosystems. AI offers the potential to continuously scan all data traffic to identify potential attacks, and in the future, it will also play a key role in authenticating individuals to manage their access to company data and applications, and to flag unusual behavior.

Fujitsu's recommendations for businesses

- AI requires the intelligent use of data, which in turn requires the planning and implementation of a strategy for the underpinning data management and collection processes, and reinforcement of today's fragmented approach to provisioning.
- Enhance employee freedom by providing staff with the tools that they require to be fully productive, regardless of location. In the case of AI, business leaders must take steps to prepare for its unstoppable march now: both to shore up their own future competitiveness and to protect the interests of their workforce. As with past technology innovations, those who can adopt technology early will find themselves one step ahead.
- Businesses need to develop a vision of the roles they will employ in the longer-term, to lay the foundations in terms of office space, infrastructure, organizational structures they will need to support a workforce that will be reshaped by AI.
- To realize this future, businesses must ensure they have a clear picture of current productivity levels across the business and then gather much more data on their employees. AI can also play a crucial role in ensuring compliance with privacy regulations, in terms of identifying and processing the relevant data. Businesses should seek advice on best practice, and their approach will depend on the culture of the organization, between what employees consider to be too private (their movements outside of the office space for example) and what they are happy to share. They also need to be clear on the benefits for employees (smoother security, more personalized experience) to get buy-in.
- Reassess current approaches and barriers to external collaboration as the types of cyber skills that organizations will need is going to significantly change. There is not an abundance of ethical hackers, IoT security experts or AI practitioners in the market today, but businesses need to start planning to train, retrain or work with a partner to ensure that they can fill these gaps in the medium term.
- To cater to the needs of today's multi-generational workforce, each with its diverse needs and expectations, it is important for businesses of all sizes to plan right now and invest in their future workplace strategy. This is a crucial step to remain relevant whilst retaining employees and providing a consistent digital user experience both for employees and the enterprise.
- Strike a better balance between compliance and a better user experience by building a less intrusive but more effective cyber security strategy that combines biometrics with contextual and behavioral analytics.
- Work out how to harness the power of wearable technology and how to get the most out of it for your business. Set clear goals for projects, be it productivity or wellness, and measure the impact.
- Ramp up your knowledge management system and processes, with the aim of spreading best practice across the organization, by encouraging the workforce to share ideas and knowledge through crowd-sourcing.

Online resources

- PAC Survey on Workplace2025: www.fujitsu.com/workplace2025
- Fujitsu's Digital Workplace Services site: https://digitalworkplace.global.fujitsu.com/
- Fujitsu's Human Centric AI vision: http://www.fujitsu.com/global/vision/human-centric-ai/
- Follow Fujitsu on Twitter: http://www.twitter.com/Fujitsu_Global
- Follow us on LinkedIn: http://www.linkedin.com/company/fujitsu
- Find Fujitsu on Facebook: http://www.facebook.com/FujitsuICT
- Fujitsu pictures and media server: http://mediaportal.ts.fujitsu.com/pages/portal.php